

REMARKS

After entry of this amendment, claims 1-39 have been amended.

It is submitted that this Amendment has antecedent basis in the application as originally filed, including the specification, claims and drawings, and that this Amendment does not add any new subject matter to the application. Consideration of the application as amended is requested. It is submitted that this Amendment places the application in suitable condition for allowance; notice of which is requested.

If the Examiner feels that prosecution of the present application can be expedited by way of an Examiner's amendment, the Examiner is invited to contact the Applicant's attorney at the telephone number listed below.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the specification:

Please rewrite the first paragraph on Page 1 as follows:

The inventor relates to a method and a device for quantitative gas analysis [having the features of the preamble of claim 1 or of claim 4].

Please rewrite the first full paragraph on Page 16 as follows:

The measuring adapter [9]4 is an injection moulded part which can be produced simply and economically, having an adhered optical window which is formed for example from silicon and can be provided with an anti-reflection layer.

Please rewrite the first full paragraph on Page 17 as follows:

The measuring adapter [9]4 can be integrated directly into a rubber seal 34 which surrounds said adapter for example in a shell-like manner on the circumference or is an applied coating with a sealing effect so that additional application of a seal is not required (Fig. 12).

In the claims:

Please amend claims 1-39 as follows:

1. (Amended) Method for the quantitative gas analysis in which the gas analysis of a sample atmosphere is implemented by means of a sensor device, a diffusion seal being produced between the sample atmosphere contained in a sample system and a measuring chamber [(9)] via a measuring adapter [(4)], at least one radiation source [(16)] and at least one detector device [(17)] being orientated on the measuring chamber [(9)] in such a manner that the measuring radiation emitted from at least one radiation source [(16)] proceeds at least once through the measuring chamber [(9)] and is detected by at least one detector device [(17)] after leaving the measuring chamber [(9)], characterised in that a sensor head [(5)] is used which can be coupled to the measuring adapter [(4)] and in which at least one radiation source [(16)] and/or at least one detector device [(17)] are disposed.

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2. (Amended) Method according to claim 1, [characterised in that]wherein the measuring adapter [(4)] is heated].

3. (Amended) Method according to claim 1 [or 2, characterised in that]wherein the measuring adapter [(4)] is used only once in order to avoid cross-contaminations.

4. (Amended) Device for the quantitative gas analysis of a sample atmosphere, which is contained in a sample system, with a measuring adapter [(4)], which contains a measuring chamber [(9)], a diffusion pipe, a cannula or at least one opening in the measuring chamber wall as diffusion seal for the diffusion of the sample atmosphere into the measuring chamber, a radiation source [(16)] and a detector device [(17)], the measuring chamber [(9)] being delimited by at least one cover [(15)], which is permeable for a measuring radiation [(24)] of the radiation source [(16)], and the radiation source [(16)] and the detector device [(17)] being disposed on the measuring chamber [(9)] in such a manner that the measuring radiation [(24)] emitted from the radiation source [(16)] is detected by the detector device [(17)] after passing at least once through the measuring chamber [(9)], characterised in that the radiation source [(16)] and/or the detector device [(17)] are disposed in a sensor head [(5)] which can be coupled to the measuring adapter [(4)].

5. (Amended) Device according to claim 4, [characterised in that]wherein the measuring chamber [(9)] is contained in the measuring adapter [(4)].

6. (Amended) Device according to one of the claims 4 [or 5, characterised in that]wherein the radiation source [(16)] is contained in the measuring adapter [(4)].

7. (Amended) Device according to [one of the claims 4 to 6, characterised in that]claim 4 wherein the measuring adapter [(4)] is configured as a stopper.

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8. (Amended) Device according to [one of the claims 4 to 6, characterised in that]claim 4 wherein the measuring adapter [(4)] has a flanged connection.

9. (Amended) Device according to [one of the claims 4 to 6, characterised in that]claim 4 wherein the measuring adapter [(4)] has a screw thread.

10. (Amended) Device according to [one of the claims 4 to 6, characterised in that]claim 4 wherein the measuring adapter [(4)] has a snap-on device.

11. (Amended) Device according to [one of the claims 4 to 10, characterised in that]claim 4 wherein the measuring adapter [(4)] contains a diffusion pipe [(20)] as diffusion seal.

12. (Amended) Device according to [one of the claims 4 to 10, characterised in that]claim 4 wherein the measuring adapter [(4)] contains a cannula [(20)] as diffusion seal.

13. (Amended) Device according to [one of the claims 4 to 10, characterised in that]claim 4 wherein the measuring adapter [(4)] contains at least one opening [(20, 33)] as diffusion seal.

14. (Amended) Device according to [one of the claims 4 to 13, characterised in that]claim 4 wherein the measuring chamber [(9)] is delimited on one side by the cover [(15)] and on the other side by a measuring chamber wall [(22, 29)], which reflects the measuring radiation [(24)], so that the measuring radiation [(24)] emitted from the radiation source [(16)] is reflected towards the detector device [(17)] after passing through the measuring chamber [(9)].

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15. (Amended) Device according to claim 14, [characterised in that]wherein the reflecting measuring chamber wall [(22, 29)] has at least one opening [(20, 33)] as diffusion seal for the diffusion of the sample atmosphere out of the sample system into the measuring chamber.

16. (Amended) Device according to claim 14 [or 15, characterised in that]wherein the measuring chamber [(9)] opens towards the coupled-on sensor head [(5)] in a funnel-or pyramid-shape in order to reflect the measuring radiation [(24)] on the measuring chamber walls [(22)].

17. (Amended) Device according to claim 14 [or 15, characterised in that]wherein the reflecting measuring chamber wall [(29)] is a reflection plate [(29)], which is parallel to the cover [(15)] and has openings [(33)] as diffusion seal.

18. (Amended) Device according to [one of the claims 4 to 17, characterised in that]claim 4 wherein the measuring chamber [(9)] has the first cover [(15)] between radiation source [(16)] and measuring chamber [(9)] and the second cover [(15)] between measuring chamber [(9)] and detector device [(17)].

19. (Amended) Device according to claim 18, [characterised in that]wherein the first cover [(15)] and the second cover [(15)] are disposed on the measuring chamber [(9)] situated approximately opposite each other.

20. (Amended) Device according to [one of the claims 4 to 19, characterised in that]claim 4 wherein the measuring chamber [(9)] is disposed between the radiation source [(16)] and the detector device [(17)].

21. (Amended) Device according to [one of the claims 4 to 20, characterised in that]claim 4 wherein the device has optical elements such as mirrors or light guides for introducing the measuring radiation [(24)] into the measuring chamber [(9)].

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22. (Amended) Device according to [one of the claims 4 to 21, characterised in that]claim 4 wherein the device has optical elements such as mirrors or light guides for directing the measuring radiation [(24)], which emanates from the measuring chamber, onto the detector device [(17)].

23. (Amended) Device according to [one of the claims 4 to 22, characterised]claim 4 wherein in that the sensor device [(13)] has at least two radiation source [(16)].

24. (Amended) Device according to [one of the claims 4 to 23, characterised in that]claim 4 wherein the sensor device [(13)] has at least two detector devices [(17)].

25. (Amended) Device according to [one of the claims 4 to 24, characterised in that]claim 4 wherein a coupling device [(14, 23, 32)] is provided for a coupling of the sensor head [(5)] to the measuring adapter [(4)].

26. (Amended) Device according to claim 25, [characterised in that]wherein the sensor head [(5)] has a coupling device [(14, 23)].

27. (Amended) Device according to [one of the claims 4 to 26, characterised in that]claim 4 wherein a broad-band thermal radiator, LEDs (light-emitting diodes), diode lasers, infrared radiators or UV light radiators are provided as radiation source [(16)].

28. (Amended) Device according to [one of the claims 4 to 27, characterised in that]claim 4 wherein the radiation-permeable cover [(15)] is formed from lime-soda-glass, boron silicate glass, quartz glass, silicon or sapphire, calcium fluoride (CaF_2), barium fluoride (BaF_2), germanium (Ge) or zinc selenide (SnSe).

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29. (Amended) Measuring system comprising a device according to [at least one of the claims 4 to 6, 12 to 14, 16 and 18 to 28]claim 4 and a sample system [(2)] which contains a sample atmosphere, [characterised in that]wherein the measuring adapter [(4)] has a universal joint for different sample systems [(2)].

30. (Amended) Measuring system according to claim 28, [characterised in that]wherein the measuring adapter [(4)] can be coupled to a pipe as sample system.

31. (Amended) Measuring system according to claim 29, [characterised in that]wherein the measuring adapter [(4)] can be coupled to a sample bottle [(2)] as sample system.

32. (Amended) Measuring system according to claim 31, [characterised in that]wherein the measuring adapter [(4)] is formed as a stopper for a sample bottle [(2)] which is present as sample system and which stopper can be inserted in particular into a bottle neck [(21)] of the sample bottle [(2)].

33. (Amended) Measuring system according to [one of the claims 28 to 31, characterised in that]claim 29 wherein the measuring adapter [(4)] has a flanged connection.

34. (Amended) Measuring system according to [one of the claims 29 to 31, characterised in that]claim 29 wherein the measuring adapter [(4)] has a screw thread.

35. (Amended) Measuring system according to [one of the claims 28 to 31, characterised in that]claim 29 wherein the measuring adapter [(4)] has a snap-on device.

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36. (Amended) Measuring system according to [one of the claims 28 to 35, characterised in that]claim 29 wherein the measuring adapter [(4)] contains a diffusion pipe [(20)] as diffusion seal.

37. (Amended) Measuring system according to [one of the claims 29 to 35, characterised in that]claim 29 wherein the measuring adapter [(4)] contains at least one opening [(20, 33)] as diffusion seal.

38. (Amended) Measuring system according to [one of the claims 29 to 35, characterised in that]claim 29 wherein the measuring adapter [(4)] contains a cannula [(20)] as diffusion seal.

39. (Amended) Measuring system according to claim 38, [characterised in that]wherein the sample system [(2)] is sealed with an elastomer seal [(10)] and the measuring adapter [(4)] contains a cannula [(20)] for penetrating the seal [(10)] as diffusion seal.

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